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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/699,920	10/30/2000	Karl James Molnar	8194-392	8240
20792	7590	10/24/2003	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC PO BOX 37428 RALEIGH, NC 27627			NGUYEN, DUNG X	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 10/24/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/699,920

Applicant(s)

MOLNAR ET AL.

Examiner

Dung X Nguyen

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 - 27, and 35 - 42 is/are allowed.
- 6) ☒ Claim(s) 28, 29, 31, 43 and 44 is/are rejected.
- 7) ☒ Claim(s) 30, and 32 - 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3,5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 28, 29, and 31 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Paik et al. (US patent # 5,311,546).

Regarding claim 28, Paik et al. discloses (figure 3):

- Demodulator 58 is configured to separately generate real and imagine signals via adaptive filter 70 to estimate errors (column 7, lines 23 – 34);
- Controller (Phase detector (PD) 76, loop filter (LF) 80, voltage controlled oscillator (VCO) 82) is responsive to both real and imagine signals, and demodulator 58 is responsive to controller (PD 76, LF 80, VCO 82).

Paik et al. differs from the instant claimed invention that it does not show the steps of separately providing frequency/error estimation and automatic control for each signal. However, adaptive 70 and controller (PD 76, LF 80, VCO 82) perform the same functions as claimed invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Paik et al. to provide the frequency/error estimation and automatic control for each signal for a designed choice.

Regarding claim 29, Paik et al. also discloses the PD 76 to respond to the real and imagine estimated signals (PD is very well known to comprise a subtractor) and demodulator 58 is responsive to the PD 76 via LF 80, VCO 82.

Regarding claim 31, Paik et al differs from the instant claimed invention that it does not state that the first signal is a desired signal and the second signal is an interfering signal. However, implementing the first signal being a desired signal and the second signal being an interfering signal is depending on a designed choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Paik et al. to provide the first signal being a desired signal and the second signal being an interfering signal for a designed choice.

3. **Claims 43 and 44 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Paik et al. (US patent # 5,311,546), and further in view of Bustamante et al. (US patent # 5,734,639).

Regarding claim 43, Paik et al. discloses (figure 3):

- Demodulator 58 is configured to separately generate real and imagine signals via adaptive filter 70 to estimate errors (column 7, lines 23 – 34);
- Controller (Phase detector (PD) 76, loop filter (LF) 80, voltage controlled oscillator (VCO) 82) is responsive to both real and imagine signals, and demodulator 58 is responsive to controller (PD 76, LF 80, VCO 82);

Paik et al. differs from the instant claimed invention that it does not show the converter that is configured to downconvert the jointly received signals. However, Bustamante et al. discloses (figure 1) downconverter 14 is configured to jointly receive signals 11A1 – N (column 3, lines 46 – 48). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Bustamante et al. into Bingham to provide the converter that is configured to downconvert the jointly received signals based on the estimated frequencies/errors for selecting the signal from the combination signals (column 1, lines 45 – 48 of Bustamante et al.).

Regarding claim 44, Paik et al. and Bustamante et al. differ from the instant claimed invention that they do not state that the first signal is a desired signal and the second signal is an interfering signal. However, implementing the first signal being a desired signal and the second signal being an interfering signal is depending on a designed choice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Bustamante et al. and Paik et al. to provide the first signal being a desired signal and the second signal being an interfering signal for a designed choice.

Allowable Subject Matter

4. **Claims 30, 32 – 34 are objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **Claims 1 – 27, and 35 - 42 are allowed.** The following is a statement of reasons for the indication of allowable subject matter:

Regarding to claims 1 – 27 and 35 - 42 the prior art of record fails to show or render obvious of a joint demodulator system for demodulating jointly received first and second signals, comprising:

A converter for downconverting the jointly received first and second signals;

A joint demodulator (or substantial as separator in claim 35) that is responsive to the downconverted jointly received first and second signals, and that is configured to separately generate an estimated first frequency/first frequency error for the downconverted first signal and an estimated second frequency/second frequency error for the downconverted second signal;

Wherein the converter is responsive to the estimated first frequency/error to downconvert the jointly received first and second signals, and wherein the joint demodulator is responsive to a

Art Unit: 2631

difference between the estimated second frequency/error and the estimated first frequency/error to jointly demodulate the downconverted jointly received first and second signals (substantial in claim 1 and claim 35); or

Wherein the jointly demodulator is responsive to both the estimated second frequency/error and the estimated first frequency/error to jointly demodulate the down converted jointly received first and second signals (substantial in claim 15)

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Curtis, III et al. (US patent # 6,359,944 B1) discloses a tuning system for achieving quick acquisition times for a digital satellite receiver.

Kandala et al. (US patent # 6,289,061 B1) discloses a wideband frequency tracking and method.

Velez et al. (US patent # 6,278,746 B1) discloses a timing recovery loop circuit in a receiver of a modem.

Lee (US patent # 6,115,431) discloses phase detecting method and phase tracking loop circuit for a digital vestigial sideband modulation communication device.

Beale (US patent # 5,828,710) discloses an AFC frequency synchronization network.

Strolle et al. (US patent # 5,872,815) discloses an apparatus for generating timing signals for a digital television signals receiver.

Koslov (US patent # 5,471,508) discloses a carrier recovery system using acquisition and tracking modes and automatic carrier-to-noise estimation.

Art Unit: 2631

Roberts et al. (US patent # 5,425,060) discloses a mechanism for reducing timing jitter in clock recovery scheme for blind acquisition of full duplex signals.

Bingham (US patent # 5,228,062) discloses a method and its corresponding apparatus for correcting for clock and carrier frequency offset, and phase jitter in multicarrier modems.

Crawford (US patent # 5,282,227) discloses a communication signal detection and acquisition.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (703) 305-4892. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Ghayour Mohammad H. can be reached on (703) 306-3034. The fax phone numbers for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

DXN

September 14, 2002


MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER